AMENDMENT TO THE CLAIMS

1. (currently amended) A signal conversion device for use in a process control system, comprising:

a first pair of electrical connections configured to couple to a two-wire process control current loop which includes a two-wire process variable transmitter which provides an analog current level on the two-wire process control current loop related to a sensed process variable;

a second pair of electrical connections configured to couple to ~~a~~an analog voltage input channel of a process device; and

a~~n~~ first electrical component electrically connected to a first electrical connection of the first pair of electrical connections and a first electrical connection of the second pair of electrical connections, the first electrical component further configured to couple to a digital communicator ~~for~~to provide a connection for digital communication ~~with~~between the digital communicator and the two-wire process variable transmitter;

a second electrical component connected between the first and a second electrical connection of the second pair of electrical connections to provide a connection for communication with the voltage input channel of the process device with an analog voltage related to the analog current level on the two-wire process control loop; and

a switch connected in parallel with the first electrical component between the first electrical connector of the first pair of electrical

connections and the first electrical connector of the second pair of electrical connectors, the switch configured to selectively allow digital communication by the digital communicator through the first electrical component with the two-wire process variable transmitter.

2. (currently amended) The apparatus of claim 1 wherein the first electrical component is in series between the first electrical connection of the first pair of electrical connections and a first electrical connection.

~~2~~3. (currently amended) The apparatus of claim 1 wherein the first electrical component comprises a resistor.

~~3~~4. (currently amended) The apparatus of claim ~~2~~3 wherein the resistor has a resistance of between about 230 and about 600 ohms.

~~4~~5. (currently amended) The apparatus of claim 1 ~~including a voltage drop component connected between the second pair of electrical connections configured to provide a voltage drop in response to a current through the two-wire process control current loop~~wherein the second electrical component is in series between the first and the second electrical connections of the second pair of electrical connections.

~~5~~6. (currently amended) The apparatus of claim ~~4~~1 wherein the second electrical component ~~voltage drop component~~ comprises a resistor.

6. (canceled)

~~7~~8. (currently amended) The apparatus of claim ~~5~~6 wherein the resistance of the ~~voltage drop component is~~resistor has a resistance of 5 ohms.

~~8~~9. (currently amended) The apparatus of claim 1 wherein a current through the two-wire process control current loop ranges between about 4 mA and 20 mA.

~~9~~10. (currently amended) The apparatus of claim 1 wherein a voltage between the second pair of electrical connections ranges between about 20 mVolts and about 100 mVolts.

~~10~~11. (currently amended) The apparatus of claim 1 including a power supply.

~~11~~12. (currently amended) The apparatus of claim ~~10~~11 wherein the power supply provide a DC output of between about 10 V and about 50 V and is coupled in series with the two-wire process control current loop.

~~12~~13. (currently amended) The apparatus of claim 1 including a output indicative of an active power supply on the two-wire process control current loop.

~~13~~14. (currently amended) The apparatus of claim ~~12~~13 wherein the output comprises an optical output.

~~14~~15. (currently amended) The apparatus of claim 1 wherein the process device includes multiple input channels.

~~15~~16. (currently amended) The apparatus of claim 1 wherein the first pair of electrical connections is configured for HART® communication.

~~16~~17. (currently amended) A signal conversion device for use in a process control system, comprising:

a first pair of electrical connections configured to couple to a two-wire process control current loop which includes a two-wire process variable transmitter which provides an analog current level on the two-wire process control current loop related to a sensed process variable;

a second pair of electrical connections configured to couple to ~~a~~an analog voltage input channel of a process device; and

digital communication coupling means electrically coupled between a first electrical connector of the first pair of electrical connections and a first electrical connector of the second pair of electrical connectors for coupling a digital communication signal ~~to the two-wire process control current loop~~between a digital communicator and the two-wire process variable transmitter through the first pair of electrical connections;

switch means connected in parallel with the digital communication coupling means between the first electrical connector of the first pair of electrical connections and the first electrical connector of the second pair of electrical connectors for selectively bypassing the digital communication coupling means; and

electrical component means connected between the first and a second electrical connectors of the second pair of electrical connectors for communicating with the voltage input channel of the process device an analog voltage related to the analog

current level on the two-wire process control loop.

~~17~~18. (currently amended) The apparatus of claim ~~16~~7 wherein the digital communication coupling means comprises a resistor.

~~18~~19. (currently amended) A method for use in a process control system, comprising:

providing a process control current loop for coupling to a two-wire process variable transmitter which provides an analog current level on the two-wire process control current loop related to a sensed process variable;

providing a first pair of electrical connections on the two-wire process control current loop for coupling to a digital communicator; ~~and~~

providing a second pair of electrical connections for coupling to ~~a~~an analog voltage input channel of a process device;

providing a first electrical component between a first electrical connector of the first pair of electrical connectors and a first electrical connector of the second pair of electrical connections configured to couple to the digital communicator for digital communication between the digital communicator and the two-wire process variable transmitter;

providing a second electrical component between the first and a second electrical connection of the second pair of electrical connections for communication with the voltage input channel of the process device using an analog voltage related

to the analog current level on the tow-wire process control loop;

providing a switch in parallel with the first electrical component between the first electrical connector of the first pair of electrical connectors and the first electrical connections of the second pair of electrical connections;

opening the switch and digitally communicating with the transmitter through the first electrical component; and

closing the switch and bypassing the first electrical component.

~~19~~20. (currently amended) The method of claim ~~18~~19 ~~including providing an impedance between the first pair of electrical connections~~wherein the first electrical component comprises a resistor.

~~20~~21. (currently amended) The method of claim ~~18~~19 ~~including providing an impedance between the second pair of electrical connections~~wherein the second electrical component comprises a resistor.

~~21~~22. (currently amended) The method of claim ~~18~~19 wherein the voltage drop across the second pair of electrical connections is between about 20 mVolts and about 100 mVolts.

~~22~~23. (currently amended) The method of claim ~~18~~19 wherein a two-wire process control current loop carries an electrical current between about 4 mA and 20 mA.

~~23~~24. (currently amended) The method of claim ~~18~~19 including digitally communicating with the two-wire process variable transmitter.

~~24~~25. (currently amended) The method of claim ~~23~~24 wherein ~~the~~ digital ~~communicator~~ communicating comprises communicating in accordance with the HART® ~~S~~standard.

26. (new) The apparatus of claim 6 wherein the second electrical component comprises a resistor.

27. (new) The apparatus of claim 17 wherein the electrical component means comprises a resistor.